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2,826,684

CEILING RECESSED LIGHT ASSEMBLY

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2 Sheets-Sheet 1

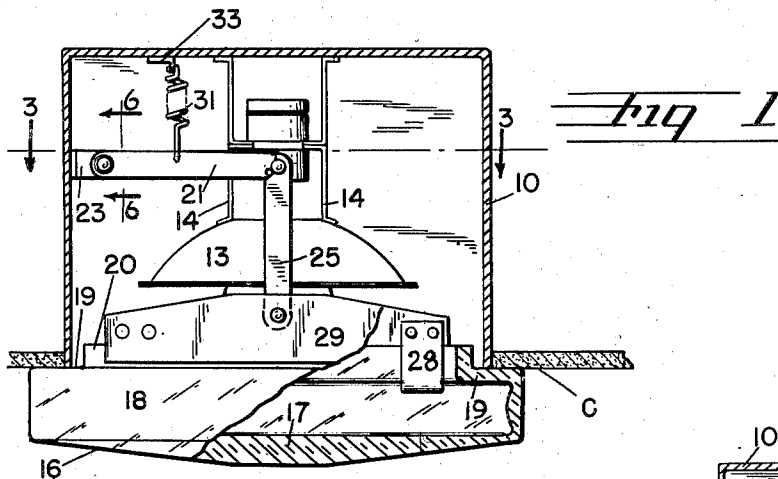


*Fig 2*

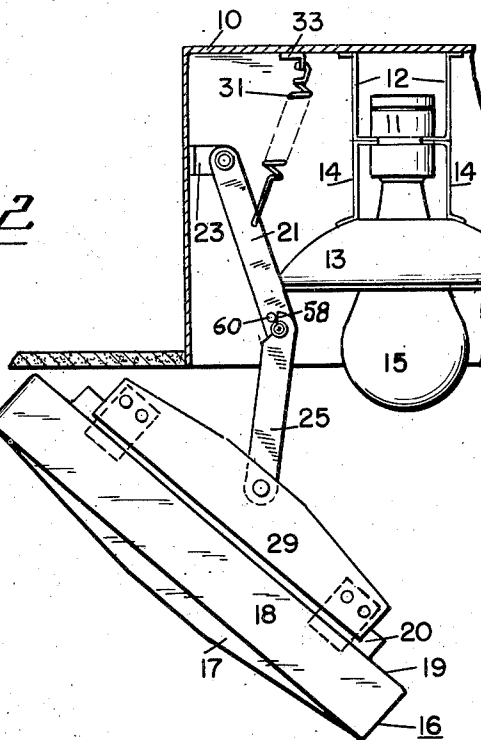
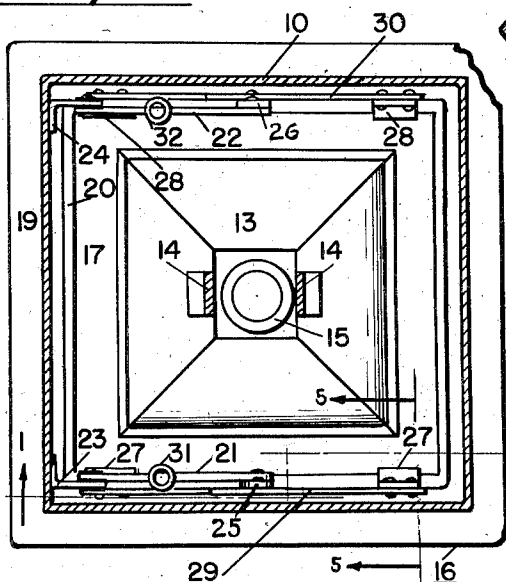


*Fig 3*



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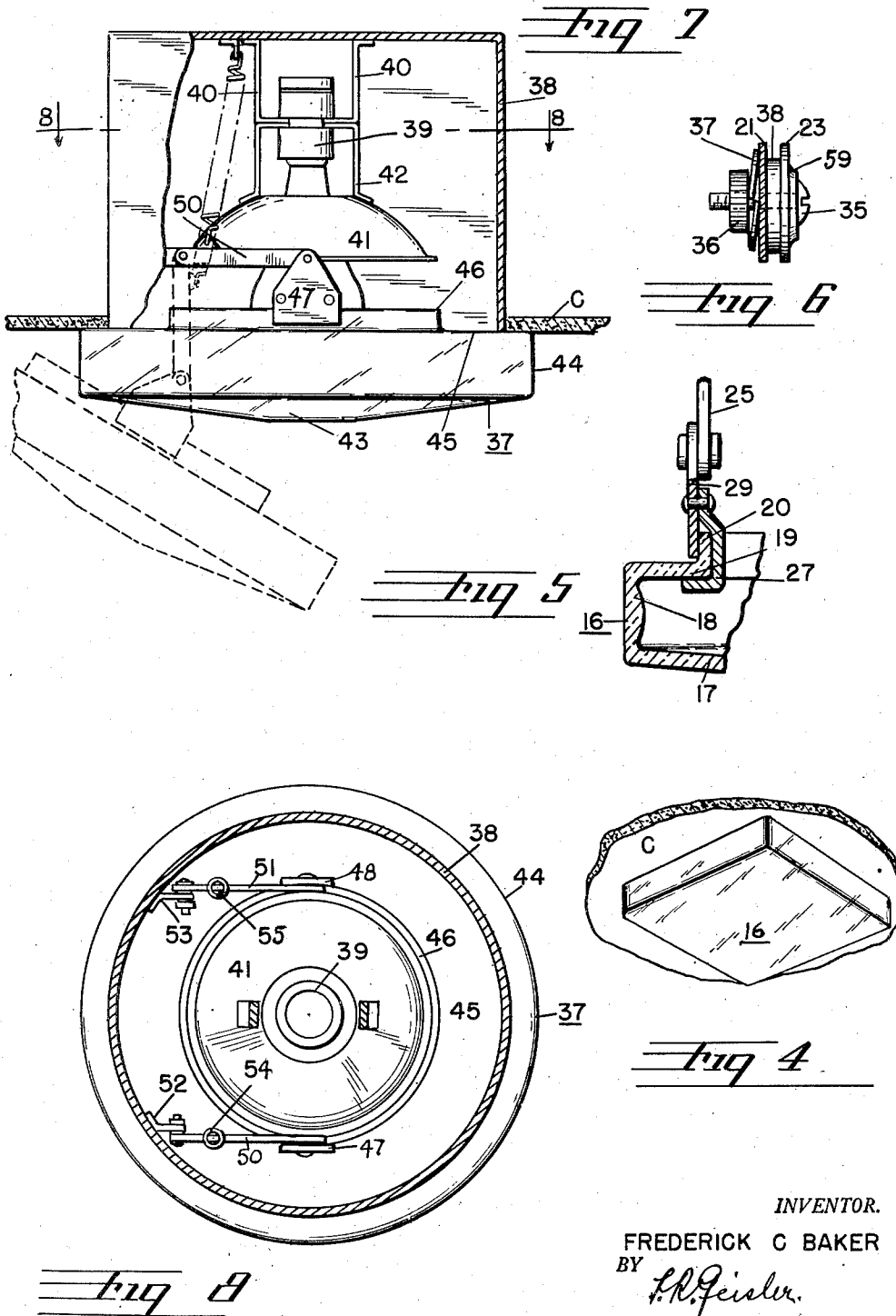
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2 Sheets-Sheet 2



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## CEILING RECESSED LIGHT ASSEMBLY

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4 Claims. (Cl. 240—78)

This invention relates in general to light fixtures in which the lamp and its mounting support are located in a ceiling recess and in which at least the major portion of the lamp is positioned above the bottom line of the ceiling.

More specifically, the invention relates to a recessed light assembly embodying a translucent shield or light diffuser located beneath the lamp or bulb and positioned on or at the ceiling.

All recessed light assemblies of this type, in which such a shield or diffuser is positioned at or on the ceiling, have, to the best of my knowledge, heretofore included some visible metal supporting means for the translucent shield, and such shield-supporting means has constituted a more or less prominent part of the light assembly.

For example, such shield-supporting means may be in the form of a metal band extending below the ceiling line and having clamping screws for securing the shield in place; or one or more suspension bolts may extend down from the fixture mounting in the ceiling recess through holes in the glass shield and carry ornamental cap nuts which engage the bottom face of the shield so as to support it; or, as is very customary, the shield itself may be mounted in a border frame of metal, which frame, in turn, is removably secured in place on the ceiling by screws, clamps, or other suitable supports.

Since such customary metal shield-supporting means is not only visible, but in most instances is also very conspicuous and prominent, the metal, or the finish given the metal, must correspond to or harmonize with the metal prominent elsewhere in the room, and thus be given a copper, bronze, black, etc. finish, depending upon the other light fixtures or ornamental hardware used in the same room. Consequently, the dealers in such recessed ceiling fixtures heretofore have been obliged either to maintain a stock of such fixtures with the visible metal parts in different metal finishes or be able to obtain the same readily from the manufacturer in any particular finish desired by the customer. This has added considerably to the ultimate cost of such fixtures to the purchasers.

A main object of the present invention is to provide a novel and improved ceiling recessed light fixture assembly in which no metal whatsoever will be visible when the fixture is in use and consequently a fixture which will not necessitate the employment of any particular grade or type of metal for any of the metal members of the assembly or require any particular finish to be given to the same.

A related object of the invention is to provide a fixture assembly, including a shield or diffuser for the fixture light or lights, in which those parts which are required to be of metal, including the supporting elements for the light diffusing shield, can be made of cheaper grades of metal than would be used in other types of light fixtures.

An additional object of the invention is to provide a ceiling light fixture of the recessed type which will compare in attractiveness with other ceiling recessed light fixtures which are more expensive to manufacture.

The manner in which these objects and other incidental

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advantages are attained with the improved fixture assembly of the present invention, and the construction, form, and mounting of the various parts in the assembly, will be readily understood from the following brief description in which reference is made to the accompanying drawings.

In the drawings:

Figure 1 is an elevation of the light fixture assembly with the near side wall of the fixture box or housing removed and with a portion of the shield broken away for the sake of clarity, and showing the assembly mounted in position in a room ceiling with the translucent shield in normal raised position;

Figure 2 is an elevation of the assembly similar in part to Figure 1 but showing the shield in lowered position;

Figure 3 is a plan section through the light fixture assembly taken on line 3—3 in Figure 1;

Figure 4 is a perspective view of the entire assembly as seen from below, drawn to a smaller scale, the shield being in normal raised position;

Figure 5 is an enlarged fragmentary section taken on line 5—5 of Figure 3;

Figure 6 is an enlarged fragmentary section taken on line 6—6 of Figure 1;

Figure 7 is an elevation of a slightly modified construction of the light fixture assembly wherein the housing box and translucent shield are made round in shape, instead of square or rectangular, the near side half of the housing box being shown broken away for the sake of clarity and the shield shown in normal raised position in full line with the lowered position of the shield indicated in broken lines; and

Figure 8 is a plan section on line 8—8 of Figure 7.

In the drawings C indicates the bottom line or face of the ceiling. Referring first to Figures 1—6 inclusive, a suitable recess is provided in the ceiling for a housing box 10. This housing box, as illustrated, is square, although it may also be made in other shapes as later explained. The housing box is secured within the ceiling recess in any suitable manner, such housing boxes being well known in the trade. The housing box 10 is open at the bottom as usual and the bottom of the housing box is substantially flush with the bottom of the ceiling, the ceiling plaster being extended to the housing wall on all sides. Also, as is customary, the housing box preferably is provided with ventilated openings or louvers (not shown).

A light socket 11 is centrally positioned within the housing box 10 and is supported below the top of the housing box by a pair of metal straps 12. A light reflector 13, concentric with the socket, is mounted below the socket and secured to a pair of brackets 14 which in turn are supported from the straps 12. A light bulb 15 for the fixture is mounted in the socket 11 and preferably extends a short distance down below the ceiling line C as shown in Figure 2.

The housing box, as thus far described, is more or less conventional and no claim is made to the same except as the housing box serves as an element in the combination constituting the entire fixture assembly.

A special integral translucent light shield, designated as a whole in Figures 1—4 inclusive by the reference character 16, is movably mounted by means from within the housing box, and this special shield provides an essential and novel part of the assembly. The shield includes a bottom wall 17 and a continuous side wall 18 extending entirely around the shield, and the shield is of such dimension that the side wall 18 will be spaced outwardly from the bottom of the housing box 10 and ceiling recess on all sides of the recess. The side wall 18 of the shield terminates in a continuous, horizontal, inwardly-extending flange 19 which is adapted to fit up against the ceiling

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and cover the border portion of the ceiling entirely surrounding the housing box and ceiling recess.

The inner periphery of the inwardly-extending flange 19 of the shield corresponds approximately in shape and dimension to the inside periphery of the bottom of the housing box 10, and preferably this inner periphery of the shield flange is formed with an upturned rim or bead 20 which will be positioned within the bottom of the housing box 10 when the shield is in the normal raised position illustrated in Figures 1, 3 and 4. A pair of parallel identical mounting plates 29 and 30 are secured to the flange 19 and rim 20 of the shield 16 on opposite sides by pairs of bracket clamps 27—27 and 28—28, as shown best in Figures 3 and 5, and these mounting plates extend up into the housing box 10 when the shield is in the normal raised position illustrated in Figures 1 and 3.

A pair of identical arms 21 and 22 are pivotally mounted for movement in parallel vertical planes on a pair of brackets 23 and 24 respectively which brackets are secured on the inside of one wall of the housing box 10 in the relative positions shown in Figure 3. Links 25 and 26 are pivotally attached to the free ends of the arms 21 and 22 respectively and extend downwardly. At their lower ends, these links 25 and 26 are pivotally connected to the mounting plates 29 and 30 respectively at center points on the latter.

A pair of coil springs 31 and 32 have their lower ends connected to the arms 21 and 22 respectively and their upper ends connected to a pair of brackets respectively which are attached to the top of the housing box 10 and one of which is shown at 33 in Figure 1. These springs are under tension at all times and thus under normal conditions maintain the arms 21 and 22 in the position shown in Figure 1 with the flange 19 of the shield 16 pressing upwardly against the portion of the ceiling surrounding the bottom periphery of the housing box 10. These springs 31 and 32 however permit the shield 16 and the arms 21 and 22 to be pulled downwardly against the force of the springs when access to the interior of the housing box 10 is desired.

Preferably, adjustable friction means are included in the pivotable mountings by which the arms 21 and 22 are attached to their brackets 23 and 24 respectively. Such preferred adjustable friction means is shown in detail for the arm 21 in Figure 6 and includes a hinge bolt 35, an adjustable thumb nut 36, a split washer 37 adjacent the thumb nut, a washer 38 between the arm 21 and bracket 23, and a spring washer 39 adjacent the head of the hinge bolt 35. The friction means provided for the mounting of the other arm 22 is identical and therefore need not be shown or described. Proper adjustment of the tension by the thumb nut 36 in each of these arm mountings will make it possible for the shield 16 to remain in the lowered position illustrated in Figure 2, if desired, when the shield is manually moved down to such position, and in such case the shield will remain in lowered position as long as desired without being manually held in such position, in spite of the force of the springs 31 and 32. Also such frictional means aid the springs 31 and 32 in maintaining the arms 21 and 22, and therewith the shield 16, firmly in the normal raised position with the flange 19 of the shield in place pressing against the ceiling, when the shield is pushed back into its normal raised position.

In order to limit the movement of the link 25 with respect to the arm 21 (Figure 2) and thus prevent the link from being brought completely into longitudinal alignment with the arm 21 (which would cause inconvenience in the thrusting of the shield back into normal raised position), a notch 58 is cut into the end of the link 25 in such location as to engage a pin 60, set in the arm 21 adjacent to the end of link 25, at the limit of the desired downward movement of the arm and link.

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Similar limiting means (not shown) is provided on the arm 22 and its link 26.

From the foregoing description it will be apparent that the shield 16 will be held in the normal position up against the ceiling as illustrated in Figures 1 and 4, but that the shield can be pulled down manually to lowered position, and, when lowered, can then be swung to a limited extent to one side, as illustrated in Figure 2, and thus afford convenient and adequate access to the interior of the housing box for changing the light bulb, etc. Thereupon an upward manual thrust on the shield is all that is necessary for returning the shield to normal raised position.

When the shield is in normal raised position, the shield is the only portion of the fixture assembly which can be seen. All the metal in the assembly is completely screened from view, and consequently, from the standpoint of appearance and from the standpoint of harmonizing with other fixtures in the room, it does not matter what metal is used in the fixture assembly or what, if any, finish is given to the metal.

Although the Figures 1 to 4 inclusive show the shield as square in shape, the shield may be made in any desired shape provided, however, that the top of the side wall of the shield on all sides is spaced outwardly from the housing and ceiling recess and provided the side wall of the shield terminates in an inwardly-extending horizontal flange which will extend over the portion of the ceiling which borders the bottom of the fixture housing box.

Thus in the modified construction illustrated in Figures 7 and 8 the translucent shield 37 is made round instead of being square or rectangular and the housing box 38 for the fixture assembly is cylindrical so as to correspond with the shield. In general, the construction of the assembly is the same as or similar to that previously described. Thus the light socket 39 is supported by the straps 40 attached to the top of the housing box 38 and the light reflector 41 is supported by brackets 42 secured to the straps 40.

The translucent shield 37 is formed with a bottom wall 43, a circular side wall 44, a top, inwardly-extending flange 45, and an upturned rim 46 on the inner periphery of the flange 45. In this case, however, the flange 45 extends further into the area covered by the housing box 38 than the flange 19 of the shield 16 previously described in order to allow for necessary clearance within the cylindrical housing box for the up and down movement of the hinged arm assemblies by which the round shield 37 is supported, as presently described.

A pair of side plates 47 and 48 are secured to the flange 45 and rim 46 of the shield 37 at diametrically opposite locations by clamps (not shown) similar to the clamps 27 and 28 previously described. A pair of arms 50 and 51 are pivotally mounted for movement in parallel vertical planes on a pair of brackets 52 and 53 secured on the inside of the housing box 38 in the relative position shown in Figure 8 and are pivotally connected to the side plates 47 and 48 respectively. Coil springs 54 and 55 have their upper ends connected to brackets secured to the top of the housing box 38 and their lower ends connected to the arms 50 and 51 respectively, and thus hold the shield 37 normally in the raised position illustrated in full line in Figure 7, but permit the shield to be pulled down to the lowered position indicated by the broken lines in Figure 7, the same as in the case of the previously described shield 16. Also, preferably, although not necessarily, the hinge mountings for the arms 50 and 51 include adjustable friction means (not shown) similar to that illustrated in Figure 6.

Thus the shield 37 and the cooperating means in the ceiling light assembly in Figures 7 and 8 perform the same function and accomplish the desired purpose in the same manner as the shield and cooperating means in

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Figures 1 to 4 inclusive. No metal whatever is visible in the fixture assembly when the shield 37 is in normal raised position against the ceiling and consequently the manufacturer can use whatever metal he desires in the light fixture. The light bulb can extend down below the ceiling line and thus provide efficient lighting for the ceiling, and the assembly allows quick and easy access to the light bulb and the interior of the fixture.

While the two recessed light assemblies illustrated and described have each been shown with only a single light bulb, it would, of course, be possible to provide for two or more bulbs in each fixture, if desired. Other minor modifications also would be possible in the assemblies without departing from the principle of the invention and without interfering with the full accomplishment of the specific objects of the invention.

I claim:

1. In a ceiling light assembly of the character described, a rectangular housing box mounted in a ceiling recess above the bottom line of the ceiling and open at the bottom, a light socket and a light reflector mounted within said housing box, an integral rectangular-shaped translucent shield having a bottom wall of greater area than the bottom opening of said housing box normally positioned a short distance below the ceiling, a continuous side wall extending upwardly from said bottom wall to the ceiling and terminating at the top in a flange extending inwardly along the face of the ceiling in a horizontal plane, an upwardly extending lip on the inner perimeter of said flange, said lip being symmetrically positioned in said shield and positionable within said bottom opening of said housing box, a pair of arm assemblies hingedly mounted in said housing box, means connecting said arm assemblies with said shield lip and flange at opposite sides respectively, spring elements in said arm assemblies exerting a force to pull said arm assemblies into normal raised position, said arm assemblies, when in raised position, holding said shield in position with said flange resting against the ceiling surrounding the bottom of said housing box, and a light bulb in said socket extending down below the ceiling into said shield, whereby said shield, in normal position, will screen said housing box and all metal members of said light assembly entirely from view and said light bulb and shield will cause light to be diffused on the ceiling around said shield as well as below said shield.

2. A ceiling light assembly including a housing box mounted in a ceiling recess above the bottom line of the ceiling and open at the bottom, a light socket and a light reflector mounted within said housing box, a translucent shield having a bottom wall of greater area than the bottom opening of said housing box normally positioned a short distance below the ceiling, a side wall extending upwardly from the perimeter of said bottom wall to the ceiling integral with said bottom wall and terminating at the top in a continuous flange extending inwardly in a horizontal plane along the face of the ceiling, an upwardly-extending lip on the inner perimeter of said flange, said lip being symmetrically positioned in said shield and positionable within said bottom opening of said housing box, a pair of arm assemblies hingedly mounted in said housing box, means connecting said arm assemblies to said shield lip and flange at opposite sides respectively, spring elements in said arm assemblies exerting a force to pull said arm assemblies into normal raised position, said arm assemblies, when in raised po-

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sition, holding said shield in position with said shield flange resting against the ceiling surrounding the bottom of said housing box, and a light bulb in said socket extending down below the ceiling into said shield, whereby said shield in normal position will screen the ceiling recess and said housing box and all metal members of said light assembly entirely from view and said light bulb and shield will cause light to be diffused on the ceiling around said shield as well as below said shield.

3. A ceiling recessed light assembly comprising a housing box mounted in a ceiling recess above the bottom line of the ceiling and open at the bottom, a light socket mounted within said housing box, a light bulb in said socket, a translucent shield having a bottom wall of greater area than the bottom opening of said ceiling recess and housing, said bottom wall normally positioned a short distance below the ceiling, a side wall extending upwardly from the perimeter of said bottom wall to the ceiling and terminating at the top in a continuous flange extending inwardly in a horizontal plane along the face of the ceiling, said flange having an inner perimeter symmetrically positioned in said shield and corresponding in shape approximately to the perimeter of said bottom opening of said housing box, holding means for said shield mounted in said housing box and connected with said shield flange at opposite sides, spring elements in said holding means normally acting to hold said shield with said flange resting against the ceiling surrounding the bottom of said housing box but enabling said shield to be pulled downwardly manually from the ceiling against the force of said spring elements, whereby said shield in normal position will screen the ceiling recess and said housing and all metal members of said light assembly entirely from view, while said shield will cause light from said bulb to be diffused around and below said shield.

4. In a ceiling recessed light fixture assembly in which a light socket housing and light reflector are located entirely within a ceiling recess and the bottom of the housing does not extend below the ceiling, an improved, translucent, fixture-screening shield having a bottom wall positioned a short distance below the ceiling, said bottom wall being considerably larger than the bottom of said housing, a continuous side wall extending upwardly from said bottom wall to the ceiling and meeting the ceiling in a path entirely surrounding and spaced from the bottom of said housing on all sides, and a continuous integral top flange in said shield extending horizontally inwardly along the ceiling from the top of said side wall to the bottom of said housing to enable said shield to be connected with said housing at the inner periphery of said flange, whereby said shield will cause light from a light in said housing to be diffused around and below said shield while entirely screening said housing and preventing the shape and size of said housing and ceiling recess from becoming evident.

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